

We claim:

1. A process for producing an epoxide comprising reacting an olefin, hydrogen and oxygen in the presence of a catalyst mixture comprising a palladium-containing titanium zeolite and a palladium-free titanium zeolite.
2. The process of claim 1 wherein the palladium-containing titanium zeolite comprises palladium and a titanium silicalite.
3. The process of claim 2 wherein the titanium silicalite is TS-1.
4. The process of claim 1 wherein the palladium-containing titanium zeolite comprises palladium, a titanium zeolite, and a noble metal selected from the group consisting of platinum, gold, silver, iridium, rhenium, ruthenium, osmium, and mixtures thereof.
5. The process of claim 4 wherein the noble metal is selected from the group consisting of platinum, gold, and mixtures thereof.
6. The process of claim 1 wherein the palladium-containing titanium zeolite comprises from about 0.01 to about 10 weight percent palladium.
7. The process of claim 1 wherein the palladium-free titanium zeolite is a titanium silicalite.
8. The process of claim 1 wherein the palladium-free titanium zeolite is TS-1.
9. The process of claim 1 wherein the olefin is a C₂-C₆ olefin.
10. The process of claim 1 wherein the olefin is propylene.
11. The process of claim 1 wherein reaction of olefin, hydrogen and oxygen is performed in a solvent.
12. The process of claim 11 wherein the solvent is selected from the group consisting of water, C₁-C₄ alcohols, supercritical CO₂, and mixtures thereof.
13. The process of claim 11 wherein the solvent contains a buffer.
14. A process comprising reacting propylene, hydrogen and oxygen in a solvent in the presence of a catalyst mixture comprising a palladium-containing titanium silicalite and palladium-free TS-1, wherein the palladium-containing titanium silicalite comprises palladium and a titanium silicalite.
15. The process of claim 14 wherein the titanium silicalite is TS-1.

16. The process of claim **14** wherein the palladium-containing titanium zeolite further comprises a noble metal selected from the group consisting of platinum, gold, silver, iridium, rhenium, ruthenium, osmium, and mixtures thereof.

17. The process of claim **14** wherein the solvent is selected from the group consisting of water, C₁-C₄ alcohols, supercritical CO₂, and mixtures thereof.

18. The process of claim **14** wherein the solvent contains a buffer.

19. A product produced by the process of claim **1**.

20. A product produced by the process of claim **14**.